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10/653,757	09/03/2003	Steven Raymond Lustig	CL2001USNA	3669

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EXAMINER

WASHBURN, DOUGLAS N

ART UNIT PAPER NUMBER

2863

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/653,757	<b>Applicant(s)</b> LUSTIG ET AL.	
	<b>Examiner</b> Douglas N. Washburn	<b>Art Unit</b> 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-88 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-36, 43-48, 55-64 and 69-82 is/are allowed.
- 6) ☒ Claim(s) 1-5, 11, 13-15, 17-20, 37, 39-41, 49, 51-54, 65-68, 83 and 85-88 is/are rejected.
- 7) ☒ Claim(s) 6-10, 12, 16, 21, 38, 42, 50 and 84 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>17 April 2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

- 1 The disclosure is objected to because of the following informalities:  
Applicant claim of priority in specification is improper (see MPEP 601.05[R-2](b)(5)).

Applicant submitted claims numbered 1-41 and 43-89 with no claim 42 presented therefore, the numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not). Misnumbered claims 43-89 been renumbered 42-88. Correction is required.

### ***Claim Objections***

- 2 The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 43-89 been renumbered 42-88. Claims 6-10, 12, 16, 21, 31, 36, 38, 42, 50 and 84 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Claim Rejections - 35 USC § 102***

3 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 11, 13-15, 17-20, 37, 39-41, 43, 49, 51-54, 65-68, 83 and 85-88 are rejected under 35 U.S.C. 102(e) as being anticipated by Paterson et al. (US 6,962,644) (Hereafter referred to as Paterson).

Paterson teaches:

A computer-controlled reaction apparatus for simultaneously conducting chemical reactions on a plurality of samples by maintaining the samples in chemical isolation from each other and subjecting each of the samples to substantially identical conditions (column 1, lines 60-65) in regard to claim 1;

A generally cylindrical reactor housing having a bore (aperture 209; column 4, lines 24-31) and a central axis (processing chamber; column 2, lines 63-67; figure 1, element 106), in regard to claim 1;

A loading/unloading section (loadlock; column 2, lines 63-67; figure 1, element 112) having an airlock (selectively activated valve; column 3, lines 19-21) in regard to claim 1;

A reaction section (processing chamber 106; column 2, lines 63-67) in regard to claim 1;

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An analytical monitoring system (process analysis system; column 5, lines 20-22; figure 4A, element 289) in regard to claim 1;

A drive section (figure 8) in regard to claim 1;

A distribution manifold system (gas distribution system; column 4, lines 49-51; figure 4, element 216) in regard to claim 1;

A gas-distribution and pressure control system in communication with a reactor housing (gas distribution system; column 4, lines 49-51; figure 4, element 216) in regard to claim 1;

A positioning system connected to a drive section (figure 8) in regard to claim 1;

A temperature control system (cooling plate; column 9, lines 45-49; figure 7, element 297) for controlling the temperature of a reactor housing in regard to claim 1;

A reaction assembly (processing chamber 106; column 2, lines 63-67), contained within a reactor housing, and movable in the housing bore in a direction along an axis of the housing (column 7, lines 22-23) in regard to claim 1;

A cylindrical outer body (figure 4A, element 261) having a bore, a plurality of ports (column 8, lines 42-45; figure 7, element 285) and a fluid distribution manifold (gas distribution system; column 4, lines 49-53; figure 4A, element 216) in regard to claim 1;

A cylindrical inner body contained within the bore of an outer body (figure 4A) in regard to claim 1;

A bore and a plurality of ports (column 8, lines 42-45; figure 7, element 285) in regard to claim 1;

A sample holder (wafer support; column 5, lines 55-60; figure 4A, element 208) containing a plurality of sample holding positions (column 2, lines 50-52) for containing samples to be reacted, the sample holder being receivable within the bore of an inner body (figure 4A, element 208) and movable along an axis to a fully-inserted position, wherein, when the sample holder is in the fully-inserted position within the inner body, each of a plurality of reaction wells is aligned with each of a plurality of ports of the inner body in regard to claim 1;

At least one optical port (column 5, lines 11-14; figure 4A, element 288) and at least one optical arrangement, comprising a paired source and detector (column 5, lines 20-22; figure 4A, elements 287, 288, 289 and 223), the at least one optical arrangement being capable of performing a measurement, at one or more ultraviolet, visible or infrared wavelengths, of a sample contained at a sample holding position to characterize the sample (column 5, lines 24-30) in regard to claim 1;

A computer controller, connected to a gas-distribution and pressure control system, a positioning system, a temperature control system, and an analytical monitoring system (process controller; column 4, lines 1-14) in regard to claim 1;

A reaction assembly is movable between a loading/unloading section, a reaction section, and an analytical monitoring system (column 5, lines 64-66) in regard to claim 1;

A drive section mechanically links a reaction assembly to a positioning system, so that a reactor assembly is positioned to each of a plurality of predetermined monitoring positions, such that at least one reaction well is aligned with at least one

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analytical port at each of a plurality of monitoring positions (column 6, lines 11-14) in regard to claim 1;

A computer controller comprises a central processor (process controller; column 4, lines 1-14), connected by a data bus (electrical communication; column 4, lines 11-14) to a random access memory (RAM) (memory; column 4, lines 10-11), a data storage device (memory; column 4, lines 10-11), an interface subsystem and a display device (computer monitor screen; column 4, lines 6-7), the central processor being controlled by an operating system and application software stored in the data storage device (column 14-23), the central processor controlling the interface subsystem which is connected to, and controls, a gas-distribution and pressure control system, a positioning system, a temperature control system, and an optical monitoring system (column 4, lines 1-14; figure 4A, element 223) in regard to claim 2;

A gas-distribution and pressure control system comprises a supply of one or more gases (column 11, lines 12-15), one or more valves (column 2, lines 63-67; figure 1, element 210) and associated flow measuring devices (column 9, lines 14-20) and pressure regulators for controlling flow of gas to a reaction assembly (column 6, lines 64 et seq; column 7, lines 1-3) in regard to claim 3;

A temperature control system comprises one or more heating elements (resistive heaters; column 7, line 26), one or more temperature sensors and a control unit, the control unit being electrically connected to an interface subsystem of a computer controller for receiving a temperature control signal and being connected to one of more sensors for receiving temperature signals and being connected to one of more heating elements for controlling electrical current to heating elements (column 7, lines 22-26) in regard to claim 4;

Optical ports of an optical monitoring system are positioned in a coplanar arrangement so that an optical arrangement, comprising one or more ports, a optical

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source and an optical detector may be selected from a plurality of optical arrangements for characterizing each sample (figure 4A, element 288) in regard to claim 5;

Simultaneously reacting all samples with a fluid (column 9, lines 59-64) in regard to claim 11;

During reaction of samples with a fluid, subjecting each sample in sequence to analysis (column 5, lines 20-53) in regard to claim 11;

Analysis is optical analysis (column 5, lines 43-53) in regard to claim 13;

Analysis is selected from the group consisting of ultrasonic, electrostatic, magnetic, radio frequency (radio frequency; column 5, lines 43-53) or x-ray analysis in regard to claim 14;

Each sample is reacted with a fluid in a chamber in which temperature or pressure is controlled (column 7, lines 21-24) in regard to claim 15;

Simultaneously reacting all samples with a fluid in a sealed vessel (column 1, lines 60-67) in regard to claim 17;

After completion of a reaction of samples with a fluid subjecting each sample in sequence to analysis in a sealed vessel (column 5, lines 22-30) in regard to claim 17;

Analysis is optical analysis (column 5, lines 43-53) in regard to claim 18;

Analysis is selected from the group consisting of ultrasonic, electrostatic, magnetic, radio frequency (radio frequency; column 5, lines 43-53) or x-ray analysis in regard to claim 19;



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Each sample is reacted with the fluid in a chamber in which temperature or pressure is controlled (column 7, lines 21-24) in regard to claim 20;

Placing one or more members of a group of samples in a position in a vessel to receive separate exposure to a reactive fluid (column 1, lines 63-67) in regard to claim 37;

Simultaneously exposing samples to a fluid (column 9, lines 59-64) in regard to claim 37;

Subjecting in a sealed vessel each member of a group of samples to analysis (column 5, lines 43-53) in regard to claim 37;

Analysis is optical analysis (column 5, lines 43-53) in regard to claim 39;

Analysis is selected from the group consisting of ultrasonic, electrostatic, magnetic, radio frequency (radio frequency; column 5, lines 43-53) or x-ray analysis in regard to claim 40;

Each sample is exposed to reactive fluid in a chamber in which temperature or pressure is controlled (column 7, lines 21-24) in regard to claim 41;

A fluid distribution system (gas distribution assembly; figure 4A, element 216) to simultaneously expose each sample to a reactive fluid (column 1, lines 35-38) in regard to claim 43;

A holder for a group of samples (wafer support; figure 4A, element 208) slidable with respect to a fluid distribution system (column 5, lines 55-60; figure 4A) in regard to claim 43;

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An analyzer (process controller; column 4, lines 1-14; figure 2, element 223) in regard to claim 43;

A fluid distribution system to simultaneously expose each sample to a reactive fluid (column 5, lines 66 et seq; column 6, lines 11-14; figure 3 element 223; figure 4A, element 208) in regard to claim 49;

An analyzer (process controller; column 4, lines 1-14; figure 2, element 223) in regard to claim 49;

A holder for a group of samples (wafer support; figure 4A, element 208) slidable with respect to the analyzer in regard to claim 49;

An analyzer performs optical analysis (column 5, lines 43-53) in regard to claim 51;

An analyzer performs a method of analysis selected from the group consisting of ultrasonic, electrostatic, magnetic, radio frequency (radio frequency; column 5, lines 43-53) or x-ray analysis in regard to claim 52;

A chamber in which temperature or pressure is controlled of each sample is controlled (column 7, lines 63 et seq; column 8, lines 1-6) in regard to claim 53;

A fluid distribution system is isolated from an analyzer (column 5, lines 60-63) in regard to claim 54;

A fluid distribution system to simultaneously expose samples to a reactive fluid (column 5, lines 66 et seq; column 6, lines 11-14; figure 3 element 223; figure 4A, element 208) in regard to claim 65;

An analyzer in a sealed vessel that is isolated from a fluid distribution

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system (column 5, lines 60-63) in regard to claim 65;

An analyzer performs optical analysis (column 5, lines 43-53) in regard to claim 66;

An analyzer performs a method of analysis selected from the group consisting of ultrasonic, electrostatic, magnetic, radio frequency (radio frequency; column 5, lines 43-53) or x-ray analysis in regard to claim 67;

Temperature or pressure is controlled in a chamber in which each sample is exposed to a fluid (column 7, lines 21-24) in regard to claim 68;

A fluid distribution system to simultaneously expose each sample to a reactive fluid (column 5, lines 66 et seq; column 6, lines 11-14; figure 3 element 223; figure 4A, element 208) in regard to claim 83;

A reaction chamber in which each sample is reacted with a fluid, the reaction chamber for each sample being separate and isolated from the reaction chamber for each other sample (column 1, lines 63-67) in regard to claim 83;

An analyzer (process controller; column 4, lines 1-14; figure 2, element 223) in regard to claim 83;

An analyzer performs optical analysis (column 5, lines 43-53) in regard to claim 85;

An analyzer performs a method of analysis selected from the group consisting of ultrasonic, electrostatic, magnetic, radio frequency (radio frequency; column 5, lines 43-53) or x-ray analysis in regard to claim 86;

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A temperature or pressure is controlled in a reaction chamber in which each sample is reacted with a fluid (column 7, lines 21-24) in regard to claim 87;

Ana a fluid distribution system is isolated from an analyzer (column 5, lines 60-63) in regard to claim 88.

***Allowable Subject Matter***

4 Claims 22-36, 43-48, 55-64, 69-82 are allowed.

Claims 6-10, 12, 16, 21, 31, 36, 38, 42, 50 and 84 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

Claim 6 recites, in part, "optical monitoring system comprises a spectrophotometer". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claim 7 recites, in part, "optical arrangement comprises a transmission arrangement, wherein light is transmitted through the thin film samples". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claim 8 recites, in part, "optical arrangement comprises a reflection arrangement, wherein light is reflected from at least one surface of the thin film samples". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claim 9 recites, in part, "optical arrangement comprises an attenuated total reflection arrangement, wherein light is repeatedly reflected from a surface of the thin

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film samples". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claim 10 recites, in part, "quenching the reaction by stopping the flow of reactant fluids and initiating a flow of quenching gas to return the temperature and pressure of the reaction assembly to ambient". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claim 12 recites, in part, "while the samples remain in the sealed vessel, subjecting one or more of them to a second simultaneous reaction with a fluid, and a second analysis". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claim 16 recites, in part, "each sample is reacted with the fluid in a first chamber, and each sample is subjected to analysis in a second chamber, and the first chamber is isolated from the second chamber". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claim 21 recites, in part, "each sample is reacted with the fluid in a first chamber, and each sample is subjected to analysis in a second chamber, and the first chamber is isolated from the second chamber". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claim 22 recites, in part, "simultaneously reacting one or more members of a subgroup of the group of samples with a fluid in the sealed vessel; and (c) subjecting each sample to analysis". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claims 23-26 depend from claim 22.

Claim 27 recites, in part, "bringing all samples to a predetermined temperature in a first chamber of a vessel; (b) simultaneously exposing each sample in a second chamber of the vessel, which is isolated from the first chamber, to a reactive fluid". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claims 28-31 depend from claim 27.

Claim 32 recites, in part, "simultaneously exposing all samples to a non-reactive fluid in a first chamber of a vessel; (b) simultaneously exposing all samples in a second chamber of the vessel, which is isolated from the first chamber, to a reactive fluid". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claims 33-36 depend from claim 32.

Claim 38 recites, in part, "step of exposing samples to the fluid comprises a step of sliding one component of the sealed vessel relative to another component of the sealed vessel". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claim 42 recites, in part, "each sample is exposed to the reactive fluid in a first chamber, and each sample is subjected to analysis in a second chamber, and the first chamber is isolated from the second chamber". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claim 50 recites, in part, "a fluid distribution system to simultaneously expose only the members of a subgroup of the group of samples to a reactive fluid". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claim 43 recites, in part, "a fluid distribution system to simultaneously expose only the members of a subgroup of the group of samples to a reactive fluid". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claims 44-48 depend from claim 43.

Claim 55 recites, in part, "a fluid distribution system to simultaneously expose only the members of a subgroup of the group of samples to a reactive fluid". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claims 56-59 depend from claim 55.

Claim 60 recites, in part, "a fluid distribution system to simultaneously expose only the members of a subgroup of the group of samples to a reactive fluid". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claims 61-64 depend from claim 60.

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Claim 69 recites, in part, "a first chamber in which each samples is simultaneously exposed to a non-reactive fluid; (b) a second chamber, isolated from the first chamber, in which each samples is simultaneously exposed to a reactive fluid". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claims 70-72 depend from claim 69.

Claim 73 recites, in part, "a first chamber in which each samples is simultaneously brought to a pre-determined temperature; (b) a second chamber, isolated from the first chamber, in which each samples is simultaneously exposed to a reactive fluid". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claims 74-76 depend from claim 73.

Claim 77 recites, in part, "an analyzer, wherein the cover is slidable with respect to the holder, and the holder is slidable with respect to the analyzer". This feature in combination with the remaining claimed structure avoids the prior art of record.

Claims 78-82 depend from claim 77.

Claim 84 recites, in part, "a fluid distribution system to simultaneously expose only the members of a subgroup of the group of samples to a reactive fluid". This feature in combination with the remaining claimed structure avoids the prior art of record.



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It is these limitations, which are not found, taught or suggested in the prior art of record, and are recited in the claimed combination that makes these claims allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

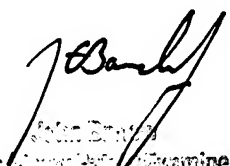
5 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas N. Washburn whose telephone number is (571) 272-2284. The examiner can normally be reached on Monday through Thursday 6:30 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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DNW

  
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